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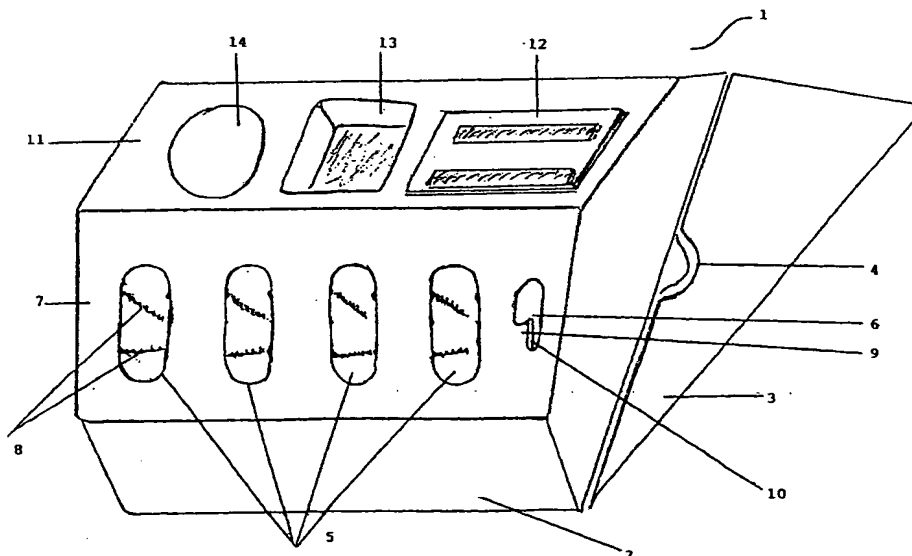
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(54) Title: HOLDER FOR SURGICAL INSTRUMENTS



(57) Abstract: A holder for surgical instruments, said instruments being of the type having a distal portion for engagement with a patient during surgery and a proximal portion for manipulation by a surgeon, said holder comprising a body (7), a plurality of retainers (5) mounted on or in the body (7) and a separator located between adjacent retainers (5), wherein location of the distal portion of a surgical instrument in or by a retainer (5) substantially separates the distal portion of the surgical instrument against contact with the distal portion of a surgical instrument located in an adjacent retainer (5) and the distal portions of the surgical instrument being substantially enclosed by the retainer (5).

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Holder for surgical instruments

Field of the invention

The invention relates to holders for surgical instruments and methods of conducting surgical procedures utilizing the benefits of such holders.

5 Background of the invention

In this specification, where a document, act or item of knowledge is referred to or discussed, this reference or discussion is not an admission that the document, act or item of knowledge or any combination thereof was at the priority date:

- (i) part of common general knowledge; or
- 10 (ii) known to be relevant to an attempt to solve any problem with which this specification is concerned.

While conducting surgical operations, numerous surgical instruments must be transferred between personnel such as surgeons, assistant surgeons, scrub nurses and scrub technicians. Surgical instruments, by their nature have sharp protuberances, either for
15 cutting or claspings tissue. Such surgical instruments include suture needles, hypodermic syringe needles, scalpels, wires, retractors, forceps and other sharp instruments.

Traditionally to transfer instruments between persons during an operation the instruments are handed directly from one person to another. This involves orienting the instrument in the correct direction so that the person receiving the instrument receives
20 the handle or proximal portion of the instrument rather than the sharp end. However sharps injuries are relatively common using this method since the person handing over the sharp instrument is at risk from the sharp or distal end of the instrument being closest to them or indeed within their hand during transfer.

Another method of transferring instruments between persons during surgery involves
25 placing the instrument in a tray such as a kidney dish or other specifically adapted tray and passing the tray between the persons. This has the disadvantage of wasting time and the person receiving the instrument must still pick it up from the tray without injuring themselves or others. In any event with such formal systems of transfer of instruments between persons involved in surgery, they require at least one person other than the
30 surgeon to effect the transfer.

In addition, it is unusual these days for a surgeon to work with the same team each time he or she is performing an operation. Thus, the team may not be particularly familiar

It is an object of the present invention to provide a holder for surgical instruments which decreases the chances of sharps injuries compared with traditional instrument handling methods described above.

5 It is a still further object of the present invention to provide a holder for surgical instruments which simplifies the surgical process for an assisted surgeon or a single surgeon operating without assistance.

Summary of the invention

Accordingly, the present invention provides a holder for surgical instruments, said instruments being of the type having a distal portion for engagement with a patient
10 during surgery and a proximal portion for manipulation by a surgeon, said holder comprising a body, a plurality of retainers mounted on or in the body and a separator located between adjacent retainers, wherein location of the distal portion of a surgical instrument in or by a retainer substantially separates the distal portion of the surgical instrument against contact with the distal portion of a surgical instrument located in an
15 adjacent retainer and the distal portions of the surgical instrument being substantially enclosed by the retainer.

A holder according to the present invention can be used with almost all known surgical instruments. It is merely necessary to alter the size of the retainer to suit the surgical instrument of interest. For example, the invention may be used to hold scalpels or scalpel
20 blades, forceps, scissors, clamps, haemostats, needle drivers etc.

The distal portion of the surgical instruments is correspondingly the blade of a scalpel, the grasping portion of forceps, clamps or haemostats, the blades of a pair of scissors and the grasping portion (and potentially the blades) of needle drivers.

The surgeon may directly or indirectly manipulate the proximal portion of the surgical
25 instrument. An example of direct manipulation is where the surgeon grasps the proximal portion of the surgical instrument with his or her hand. Indirect manipulation includes any application where the instrument is not directly contacted by the surgeon, for example, a surgeon picking up a scalpel blade placed in a retainer by means of a scalpel handle will be indirectly manipulating the scalpel blade. Thus where the instrument is
30 engaged by another instrument or piece of equipment, then the portion so engaged is the proximal portion. For example, the non-blade end of a scalpel blade, or the hub end of a needle.

Retainers according to this preferred embodiment may be integral with or separate from other retainers. According to a most preferred embodiment, the retainers are separate and can be separately reversibly fastened in apertures in the body of the holder. Such retainers may be removed after surgery, sterilised and replaced or substituted with new retainers.

Where the retainer is oriented appropriately, the distal portion of an instrument may be kept in the retainer by gravity. Such an embodiment allows instruments to be quickly placed in and removed from the retainer. A cavity according to this embodiment may be enclosed by or may define an aperture. Where there is an aperture, the instrument may optionally extend through the aperture. Such an embodiment has the advantage of assisting with drainage of waste material through the aperture and away from contact with the instrument.

According to a most preferred embodiment, the retainers are cavities and the cavities are elongated and tapered. Most preferably, the cavities are elongate tapering with an oval or bi-lobed cross-section which is preferably elongate. However, a square, rectangular or other cross-sectional shape to accommodate a specific instrument will also be suitable. The cavities may be of any suitable dimension. According to one embodiment, the cavities are approximately 4 cm in depth and the bi-lobed cross section tapers from approximately 3 cm to approximately 2 cm. Most preferably, the cavities are formed separately from the body of the holder.

It has been found that cavities with this shape are able to retain a broad range of surgical instruments of the type comprising matching paired distal components, for example the two arms of a pair of forceps, or the two blades of a pair of scissors. The respective arms or blades thus slide into different lobes of the cavity as the instrument is placed in the cavity.

Preferably the wall of each cavity (retainer) defines an aperture at its tapered end so as to enable fluid on a surgical instrument placed in it to fall through the aperture rather than pooling in the bottom of the cavity. Such pooling of fluids (for example blood) increases the chances of bacterial growth and thus contamination of wounds.

Certain embodiments of the present invention may not require such an aperture. An example of such an embodiment is where the length of the elongate cavity is substantially longer than the length of the distal portion of the surgical instrument. Similarly, if the surgical instrument is to be used with sterile fluids, then it is not as necessary to ensure drainage from them. There will be situations where it is required that the distal portion

In one particularly preferred embodiment, the body of the holding portion defines an aperture wherein at least one portion of the body projects into the aperture and said portion comprises a lip extending substantially perpendicular to the plane of the body defining the aperture so as to engage the medical sharp for removal from the medical or surgical implement.

According to a particularly preferred embodiment comprising the collecting portion, the instruments are held in the retainers so as to not contact the collecting portion. Preferably the retainers suspend the instruments above the collecting portion and preferably the retainers comprise indentations in the body of the holding portion (or holder). Such cavities or indentations preferably define an aperture in order to allow fluid or other material on the instruments to pass into the collecting portion. Preferably such material simply falls from the instruments into the collecting portion.

According to another preferred embodiment, the collecting portion comprises a tray. The holding portion of a holder according to this embodiment may engage such a tray in any suitable way. For example, the holding portion may simply sit over the tray, or the tray may be slidably engaged with the holding portion in a similar manner to a drawer in a chest of drawers.

Where the collecting portion is to be used to collect fluids, then preferably it comprises a fluid absorbent surface, such as a fluid absorbent mat.

According to another preferred embodiment, the holding portion further comprises a portion for holding other surgical items. Such items may include for example, surgical needles, suture material, implants, etc. Preferably such a portion comprises an indentation in the body of the holder or holding portion. Such a portion may comprise an adhesive or magnetic strip to temporarily hold to surgical items. This enables needles and blades to be laid out and then picked up as necessary by the surgeon and simplifies the needle count at the end of surgery.

A holder according to the present invention may be designed for single use and subsequent disposal or for multiple use after re-sterilisation. To this end, the holder may be manufactured from any suitable material. For example, it may be manufactured from stainless steel, poly-vinyl chloride polymer, polyethylene, polypropylene, composite polymer materials, other plastic materials or any other material suitable for multiple use after re-sterilisation.

Holders according to the present invention may be adapted for particular applications, for example, holders with particular features may be adapted for orthopaedics,

portions. The holding portion and / or collecting portion may also be stackable with other items. The ability to stack in this manner greatly assists with storage and transport of such holders.

According to a second aspect of the invention there is provided a device for removal of medical sharps from medical implements comprising a body defining an aperture wherein at least one portion of the body projects into the aperture and said portion comprises a lip extending substantially perpendicular to the plane of the body defining the aperture so as to engage the medical sharp for removal from the medical implement. Preferably the aperture is a generally rounded rectangular shape and preferably the rounded rectangle is missing one corner due to the projection of the body into the aperture. Preferably the lip extends less than half way around the perimeter of the aperture and preferably it extends half way across the projection from the body into the aperture. According to the most preferred embodiment of this aspect of the invention, the lip extends perpendicularly to the plane of the body from which the aperture is defined.

According to another embodiment, the projection of the body comprises a tapered or serrated edge to enable removal of screw-threaded sharps from medical instruments. This embodiment is particularly useful for removing screw-on sharps and components such as screw-on needles and catheters. Alternatively, another portion of the aperture may comprise a serrated edge to enable removal of screw-threaded sharps from medical instruments.

According to a third aspect of the present invention, there is provided a retainer for a holder for surgical instruments according to the present invention. A retainer according to this aspect of the invention may take any suitable form. For example, it may retain by grasping the instruments, by hanging or hooking the instrument on the retainer, or it may be a recess or well into which the instrument (or a portion of it) is placed. A separator according to this embodiment may take any suitable form. For example, it may be a component adapted to keep adjacent instruments distracted from one another, equally it may simply be a wall such as a part of a retainer, or other portion of the body of the holder.

However, location of the distal portion of a surgical instrument in or by a retainer must substantially separate the distal portion of the surgical instrument to minimise the risk of direct contact with other surgical instruments located in adjacent retainers.

According to one preferred embodiment, the distal portions of the surgical instruments are substantially enclosed by the retainers. This further minimises the risk of sharps

The cavities may be of any suitable dimension. According to one embodiment, the cavities are approximately 4 cm in depth and the bi-lobed cross section tapers from approximately 3 cm to approximately 2 cm.

5 It has been found that cavities with this shape are able to retain a broad range of surgical instruments of the type comprising matching paired distal components, for example the two arms of a pair of forceps, or the two blades of a pair of scissors. The respective arms or blades thus slide into different lobes of the cavity as the instrument is placed in the cavity.

10 Preferably the wall of each cavity (retainer) defines an aperture at its tapered end so as to enable fluid on a surgical instrument placed in it to fall through the aperture rather than pooling in the bottom of the cavity. Such pooling of fluids (for example blood) increases the chances of bacterial growth and thus contamination of wounds.

Certain embodiments of the present invention may not require such an aperture. An example of such an embodiment is where the length of the elongate cavity is substantially
15 longer than the length of the distal portion of the surgical instrument. Similarly, if the surgical instrument is to be used with sterile fluids, then it is not as necessary to ensure drainage from them. There will be situations where it is required that the distal portion of the surgical instrument must be kept in a fluid (such as a sterile fluid) which will necessitate that there is no aperture in the tapered end of the cavity.

20 The retainer may also retain the instrument by engaging it. This may be any suitable form of engagement. The retainer may grasp the instrument, or it may cause sufficiently increased friction (for example, an interference fit) so as to maintain the distal portion of the instrument in the retainer.

25 According to a fourth aspect of the invention there is provided a method of instrument use during surgery comprising the steps of

1. utilizing a surgical instrument during surgery;
2. locating the surgical instrument in a retainer of a surgical instrument holder as described above;
3. removing the surgical instrument from the holder for further surgical use; and
- 30 4. replacing the surgical instrument in the holder following suitable surgical use.

In one preferred embodiment, the nurse or surgical assistant is responsible for managing the process of use of the surgical instrument holder. This includes ensuring that the

on the retainer, or it may be a recess or well into which the instrument (or a portion of it) is placed. A separator according to this embodiment may take any suitable form. For example, it may be a component adapted to keep adjacent instruments distracted from one another, equally it may simply be a wall or other portion of the body of the holder such as a part of a retainer.

However, location of the distal portion of a surgical instrument in or by a retainer must substantially separate the distal portion of the surgical instrument to minimise the risk of direct contact with other surgical instruments located in adjacent retainers.

According to one preferred embodiment, the distal portions of the surgical instruments are substantially enclosed by the retainers when they are located in them. This further minimises the risk of sharps injury to a surgeon or assistant surgeon (etc) who might otherwise accidentally touch the distal portion in its retainer. By 'substantially enclosed', it is meant that the instruments are sufficiently enclosed so as to effectively separate the distal portions of surgical instruments. However, it is contemplated that this does not preclude an embodiment in which the distal end of the retainer comprises an aperture as described below (for example, to allow egress or drainage of fluid from the retainer).

According to a still further preferred embodiment, retainers are configured such that retention of the instruments orients them such that their proximal portion projects from the body of the holder. This enables the proximal portion to be more readily accessed by the surgeon or assistant and thus reduces wastage of time.

According to another preferred embodiment, the retainer into which the instrument is located defines a cavity in the body of the holder. A retainer according to this embodiment may be integral with the body of the holder, or it may be separate. Where the retainer is separate, then preferably the retainer can be readily engaged with and fastened to the holder. For example, there may be provided an engagement means to allow engagement of the retainer and the holder and a fastener to fasten the retainer and holder.

Where the retainer is oriented appropriately, the distal portion may be kept in the retainer by gravity. Such an embodiment allows instruments to be quickly placed in and removed from the retainer. The cavity according to this embodiment may be enclosed by or may define an aperture. Where there is an aperture, the instrument may optionally extend through the aperture. Such an embodiment has the advantage of assisting with drainage of waste material through the aperture and away from contact with the instrument.

fluid or other material on the instruments to pass into the collecting portion. Preferably such material simply falls from the instruments into the collecting portion.

Where the collecting portion is to be used to collect fluids, then preferably it comprises a fluid absorbent surface, such as a fluid absorbent mat.

- 5 According to another preferred embodiment, there is provided the further step of retaining other surgical items in a portion of the holding portion. Such other surgical items may include for example, surgical needles, suture material, implants, etc. Preferably such a portion comprises an indentation in the body of the holder or holding portion. Such a portion may comprise an adhesive or magnetic strip to temporarily hold to surgical
10 items. This enables needles and blades to be laid out and then picked up as necessary by surgeon and simplifies with the needle count at the end of surgery.

- According to the present method, a holder may be designed for single use and subsequent disposal or for multiple use after re-sterilisation. To this end, the holder may be manufactured from any suitable material. For example, it may be manufactured from
15 stainless steel, poly-vinyl chloride polymer, polyethylene, polypropylene, composite polymer materials or other plastic materials.

- The method according to the present invention is suitable for many different surgical applications. For example, the method of use of such holders may be adapted for orthopaedics, ophthalmology, soft tissue surgery, microsurgery, veterinary and all surgical
20 disciplines as well as dental work. In a preferred embodiment, the method of use of a holder may be adapted for a particular surgical procedure, for example, a particular surgical procedure may require the use of particular surgical instruments and in a particular order.

- In one embodiment which is particularly useful for microsurgical procedures, the
25 instruments are retained in retainers which are blind ending cavities in that there is no aperture defined in the end of the cavity. Such an embodiment allows the cavity of the retainer to be filled with fluid to retain microsurgical instruments. Preferably the retainer comprises a pad for the microsurgical instruments to sit on. Such a pad is most preferably soft so as to minimise damage to the sharp portions of the microsurgical instruments.
- 30 The fluid filling the cavity may be of any suitable type. The fluid may be any fluid suitable for intravenous administration, for example, it may be lactated ringers solution or isotonic (0.9%) saline.

According to a particularly preferred embodiment, the method comprises an initial step of assembling the holder from various components. Holders for use with this method will

Figure 14 is a side view of the retainer of Figure 12;

Figure 15 is a longitudinal side view of the retainer of Figure 12;

Figure 16 is a plan view of a preferred form of a surgical sharp remover according to one aspect of the invention; and

- 5 Figure 17 is a plan view of the cut-out section of the holder which is removed when the aperture of Figure 16 is cut into the body of a holder according to the present invention.

Figures 1, 5 and 9 are perspective views of holders shown generally at 1. The holder of Figure 1 comprises a holding portion and collecting portion according to the present invention. Holding portion 2 and collecting portion 3 (in Figure 1 only) which are fitted
10 snugly together. Indentation 4 in the wall of collecting portion 3 serves to enable someone using the invention to readily lift holding portion 2 away from collecting portion (or base) 3. It is apparent that the collecting portion 3 is separate from the holding portion 2 and each comprise complementary portions to enable engagement.
Furthermore, it will be appreciated that a holder according to the present invention may
15 comprise a holding portion (such as that depicted at 2) without a corresponding collecting portion (such as that depicted at 3).

The holders depicted do not include an engagement portion to engage another surgical holder or tray, but as discussed above, other preferred embodiments include such portions. Such engagement enables holders to be put together in combination for
20 particular applications. For example, it may be necessary to have holders with particular retainers for a particular surgical procedure. The holders can be arranged in any suitable fashion so as to maximise the ease of use for the surgeon.

Holding portion 2 in Figures 1, 5 and 9 comprises retainers 5 and aperture 6. Retainers 5 comprise cavities in the body 7 of the holding portion 2 of holder 1. The retainers 5 of
25 Figure 1 are integral with the body of holding portion 2, whereas the retainers 5 of Figure 5 are removable and are depicted in Figures 12, 13, 14 and 15. Figure 9 shows the holder of Figure 5 without retainers 5.

Of course, a retainer according to the present invention may take any suitable form. For example, it may retain by grasping the instruments, by hanging or hooking the instrument
30 on the retainer, or it may be a recess or well into which the instrument (or a portion of it) is placed. Similarly, a separator according to this embodiment comprises a portion of the body of the holder. However, it may take any suitable form such as a component adapted to keep adjacent instruments distracted from one another, equally it may simply be a wall.

for example the two arms of a pair of forceps, or the two blades of a pair of scissors. The respective arms or blades thus slide into different lobes of the retainers 5 as the instrument is placed in the cavity.

The dimensions of the retainers of Figure 1 are approximately 4 cm in depth and the bi-lobed cross section tapers from approximately 3 cm to approximately 2 cm. However, as depicted in Figures 4, 5 and 13, retainers 5 may come in a variety of sizes. Flange 5a on retainers 5 enables them to engage with the holder irrespective of the size of the cavity in the retainer. Figures 8 and 9 depict a holder with apertures 5b through which the cavity portion 5c of retainers 5 are placed. Flange 5a on retainers 5 engages with the portion of the holder surrounding aperture 5b in the holder. Any suitable fastening means may be used to fasten retainers 5 to the holder. For example, an adhesive strip may be attached to the underside of flanges 5a so that retainers 5 can be adhered to the body of the holder.

In Figures 1 and 16, aperture 6 is defined in body 7 and portion 9 of body 7 projects into aperture 6. Portion 9 comprises lip 10 which extends substantially perpendicular to the plane of body 7 so as to enable engagement of surgical or medical sharps for removal from the surgical instrument or medical implement. The embodiment of aperture 6 depicted in Figures 16 and 17 demonstrates a serrated edge 9a cut into aperture 6 which enables screw-on sharps to be grasped and removed in a relatively simple manner and with one hand.

In Figures 1, 4 and 5, body 7 further comprises portion 11 for holding other surgical items. As can be seen by a comparison between Figures 4 and 5 as against Figures 8 and 9, portion 11 may be an insert through an aperture 11a in body 7 in the holder. According to this embodiment, portion 11 may be as simple as a small tray with a lip which sits over aperture 11a.

As depicted in Figure 1, portion 11 may comprise a pad 12 which is an adhesive strip to adhere to surgical sharps or needles. However, the function of this strip may equally be performed by a magnetic strip or by another suitable means or a combination of more than one means. Indentation 13 in body 7 enables small surgical items to be placed on the holder and it may comprise foam, magnetic adhesive or suitable combinations. This might include scalpel blades or small swabs or any other relevant items. For example, surgical clips or implants.

In embodiments in which there is a collecting portion, such as in Figure 1, aperture 14 defined in body 7 enables used swabs and other surgical waste such as excised tissue to

The embodiments depicted in Figures 4 to 11 demonstrate a further feature of the present invention. It will be apparent from these figures that the sides of the holder are not connected at the corners. This is because the holder is cut from a single flat sheet of material (such as stainless steel, a polymer or any suitable material), and the sides are bent down to form the stand portion 2a of the holder. The sheet material may be any suitable material as previously described herein. In one preferred embodiment, 4 mm thick plastic is used.

The word 'comprising' and forms of the word 'comprising' as used in this description do not limit the invention claimed to exclude any variants or additions.

10 Modifications and improvements to the invention will be readily apparent to those skilled in the art. Such modifications and improvements are intended to be within the scope of this invention.

13. A holder according to any one of claims 10, 11 or 12 wherein the holder is shaped so that the holder or the holding portion of the holder is stackable with a plurality of like-shaped holders (or holding portions).
14. A holder according to any one of the preceding claims wherein the collecting
5 portion is shaped so that it is stackable with a plurality of like-shaped collecting portions.
15. A holder according to any one of the preceding claims comprising an engagement portion to engage another surgical tray or holder.
16. A holder according to any one of the preceding claims further comprising a portion for holding other surgical items.
- 10 17. A holder according to any one of the preceding claims further comprising a device for removal of medical sharps from medical implements comprising a body defining an aperture wherein at least one portion of the body projects into the aperture and said portion comprises a lip extending substantially perpendicular to the plane of the body defining the aperture so as to engage the medical sharp for removal from the medical
15 implement.
18. A holder according to claim 17 wherein the aperture is a generally rounded rectangular shape and is missing one corner due to the projection of the body into the aperture.
19. A holder according to claim 17 or claim 18 wherein the lip extends:
- 20 a. less than half way around the perimeter of the aperture;
- b. half way across the projection from the body into the aperture; and
- c. extends perpendicularly to the plane of the body from which the aperture is defined.
20. A holder according to any one of claims 17 to 19 wherein a portion of the body
25 comprises a tapered or serrated edge to enable removal of screw-threaded sharps from medical instruments.
21. A device for removal of medical sharps from medical implements comprising a body defining an aperture wherein at least one portion of the body projects into the aperture and said portion comprises a lip extending substantially perpendicular to the
30 plane of the body defining the aperture so as to engage the medical sharp for removal from the medical implement.

- c. removing the surgical instrument from the holder for further surgical use;
and
- d. replacing the surgical instrument in the holder following suitable surgical use.

5 33. A method according to claim 32 wherein the nurse or surgical assistant is responsible for managing the process of use of the surgical instrument holder.

34. A method according to either claim 32 or claim 33 comprising a further step of collecting materials in a collecting portion associated with the holder.

10 35. A method according to any one of claims 32 to 34 further comprising the step of removing a surgical or medical sharp by engaging the sharp with a sharp removal means comprising a body defining an aperture wherein at least one portion of the body projects into the aperture and said portion comprises a lip extending substantially perpendicular to the plane of the body defining the aperture so as to engage the medical sharp for removal from the medical or surgical implement.

15 36. A method according to any one of claims 32 to 35 further comprising the step of retaining other surgical items in a portion of the holding portion.

37. A method according to any one of claims 32 to 36 comprising the step of assembling a holder from various components.

ABSTRACT

A holder for surgical instruments, said instruments being of the type having a distal portion for engagement with a patient during surgery and a proximal portion for manipulation by a surgeon, said holder comprising a body (7), a plurality of retainers (5) mounted on or in the body (7) and a separator located between adjacent retainers (5), wherein location of the distal portion of a surgical instrument in or by a retainer (5) substantially separates the distal portion of the surgical instrument against contact with the distal portion of a surgical instrument located in an adjacent retainer (5) and the distal portions of the surgical instrument being substantially enclosed by the retainer (5).

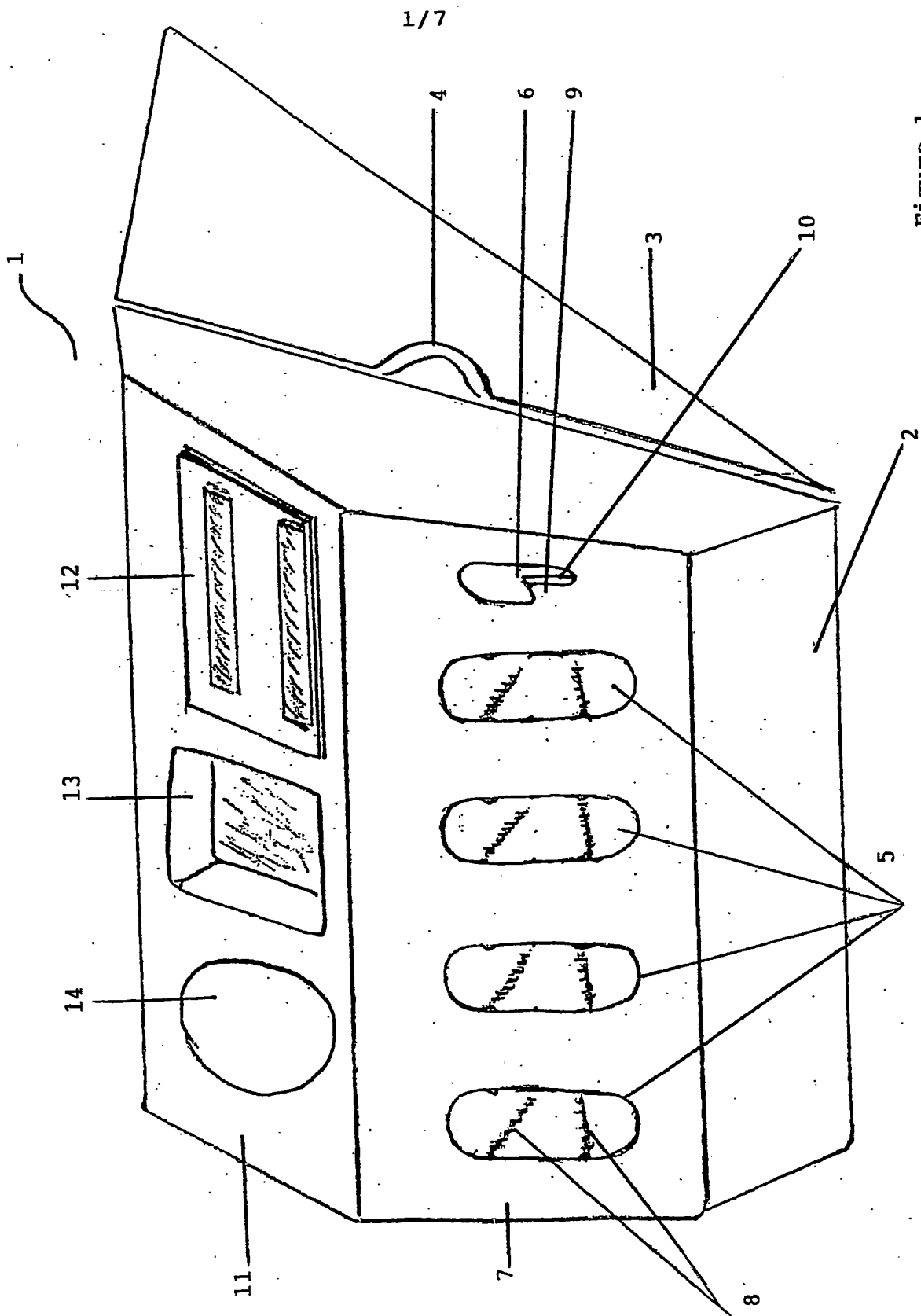


Figure 1

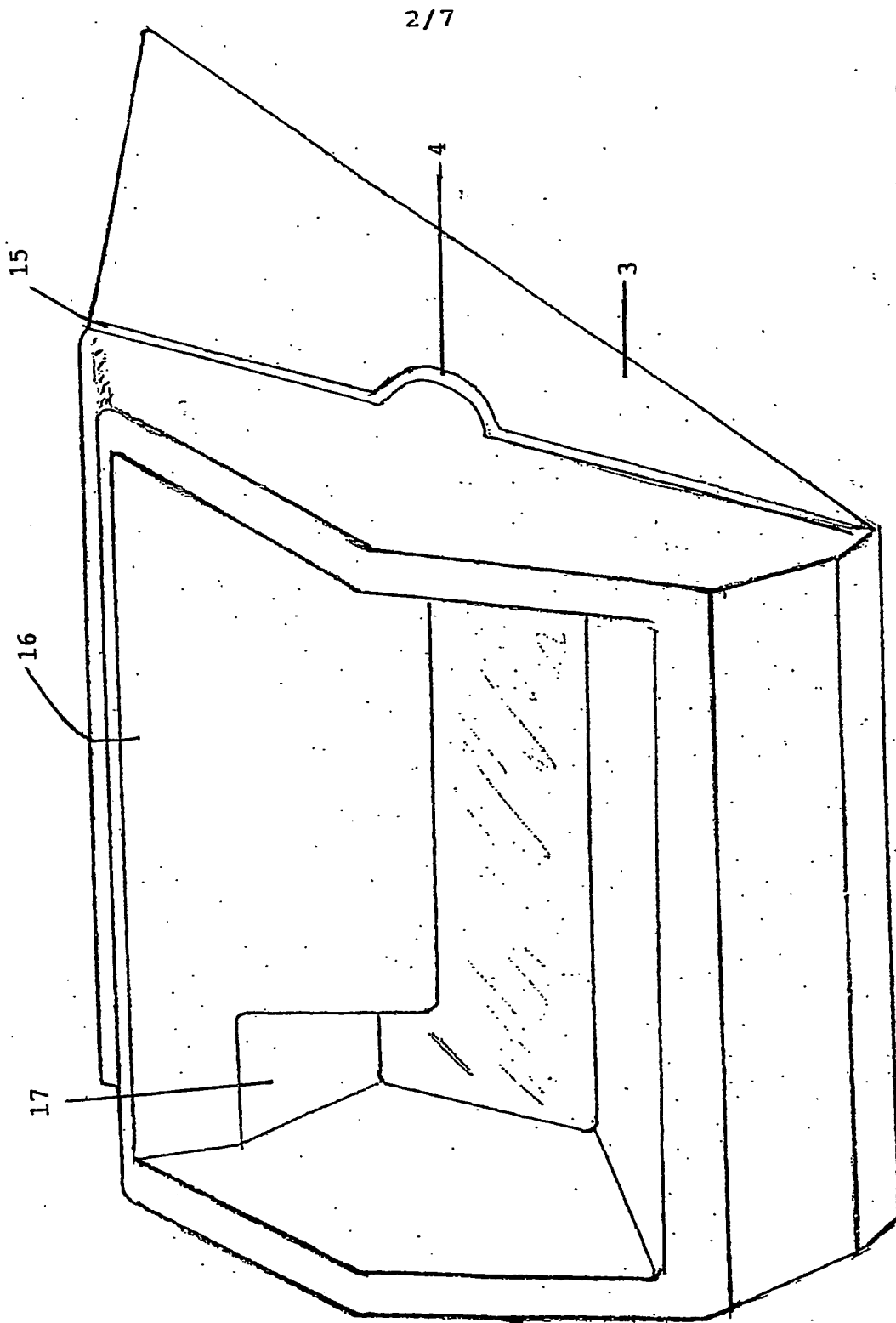


Figure 2

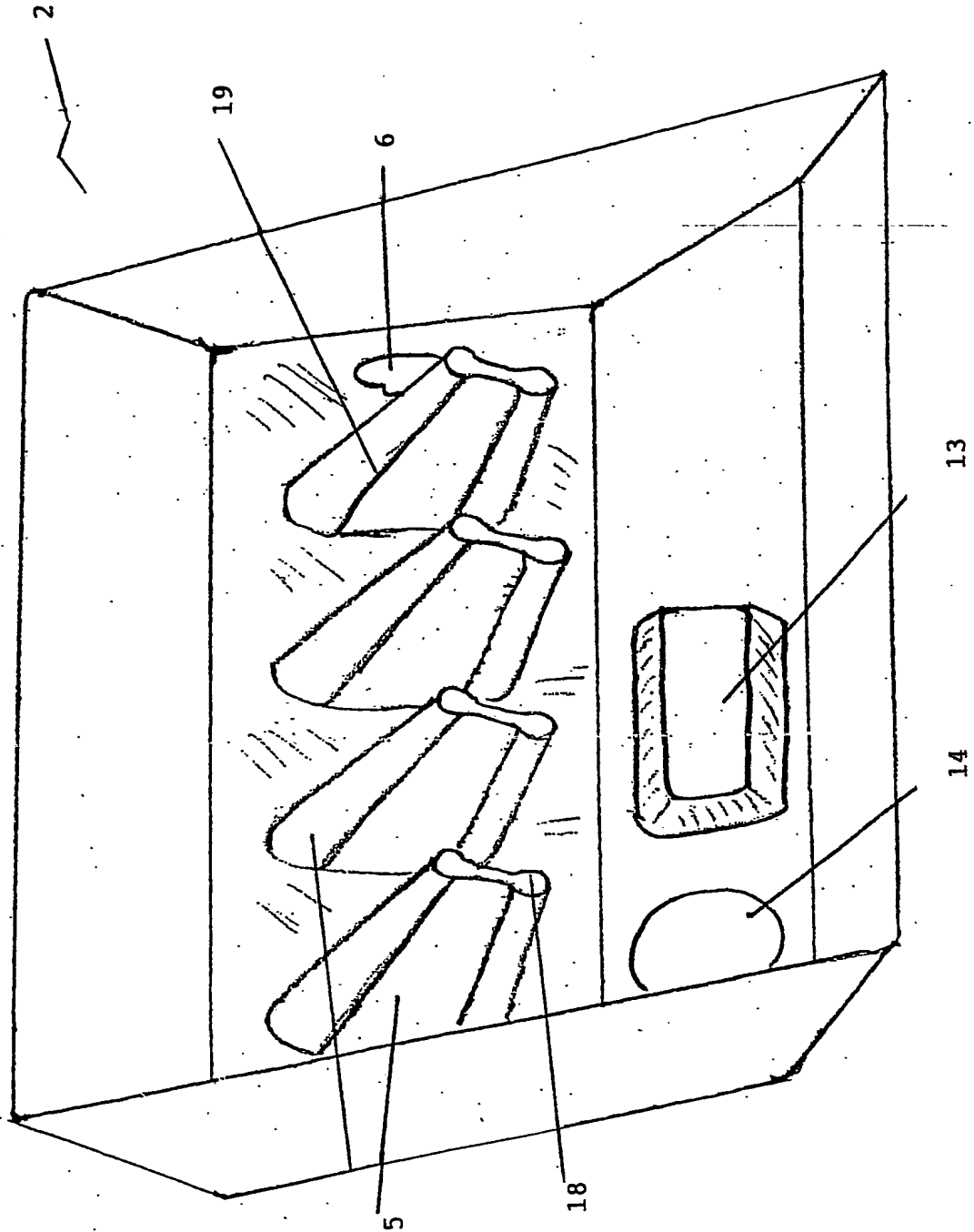


Figure 3

4/7

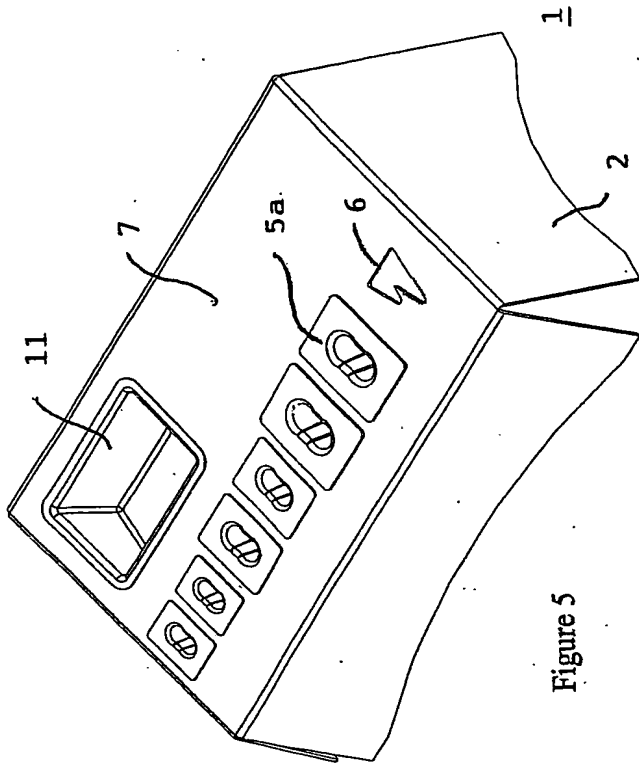


Figure 5

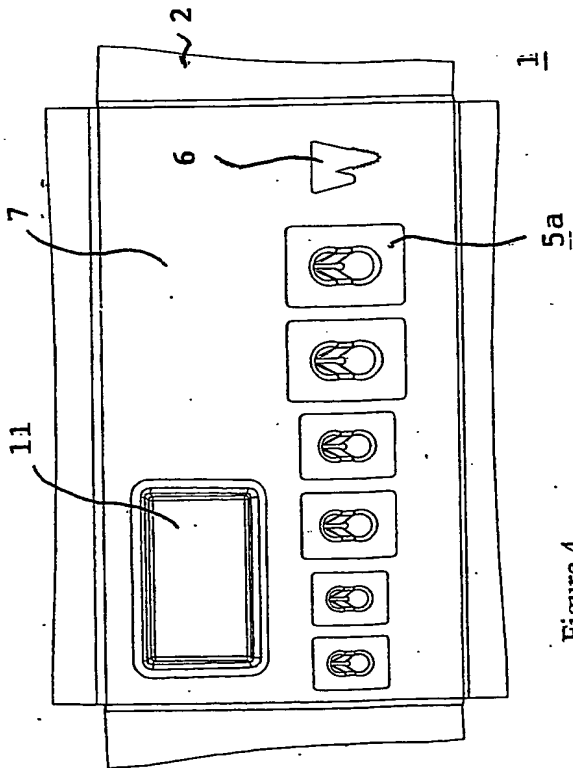


Figure 4

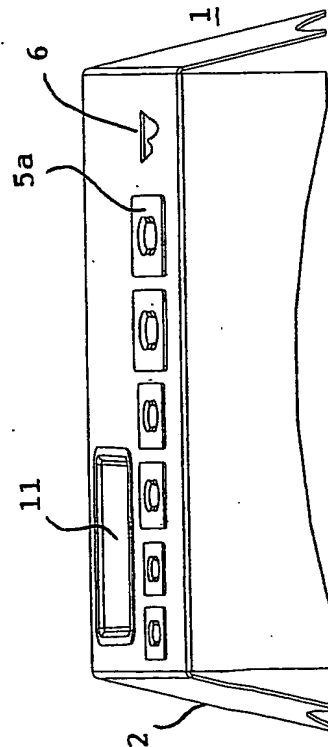


Figure 6

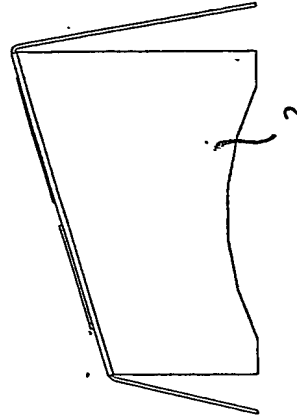


Figure 7

SURGI-SMART Assembly

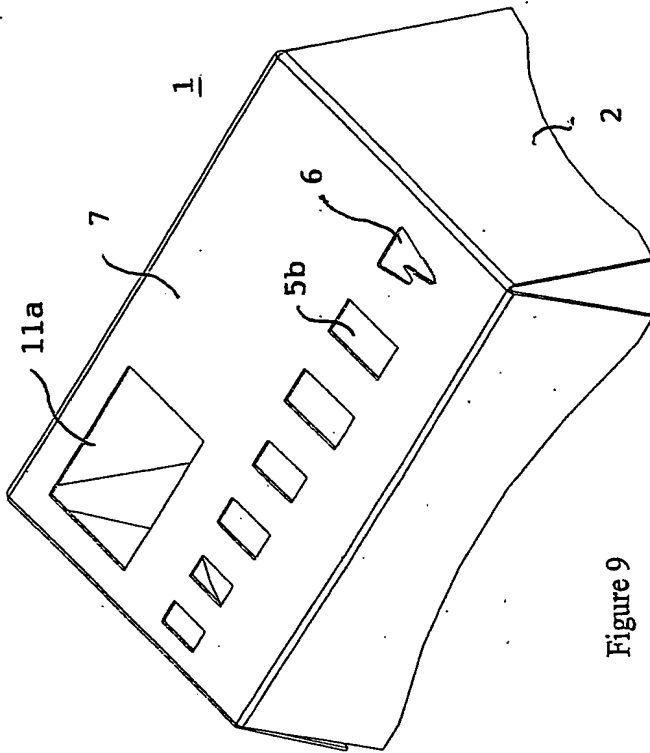


Figure 9

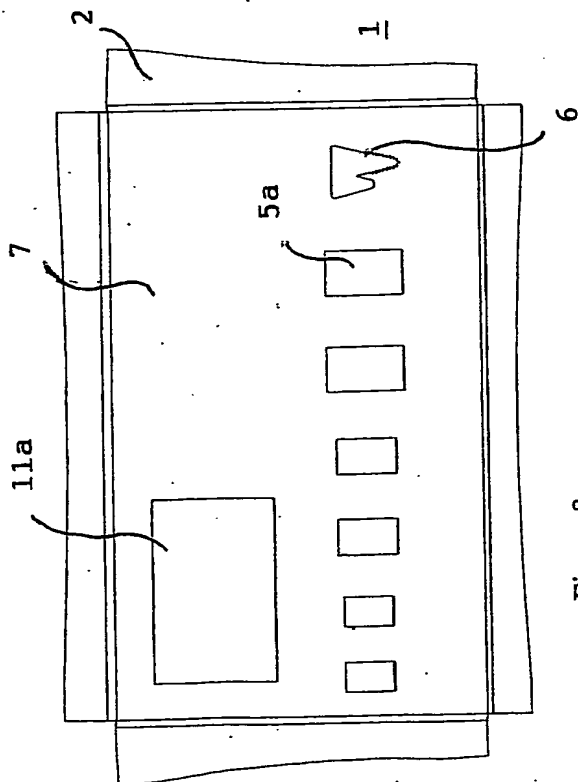


Figure 8

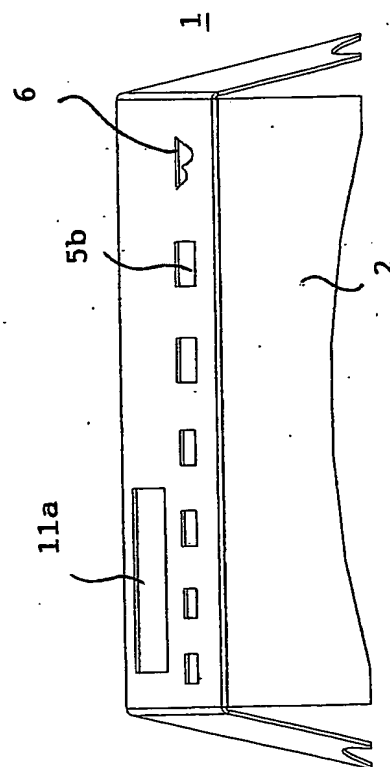


Figure 10



Figure 11

SURGI-SMART Body

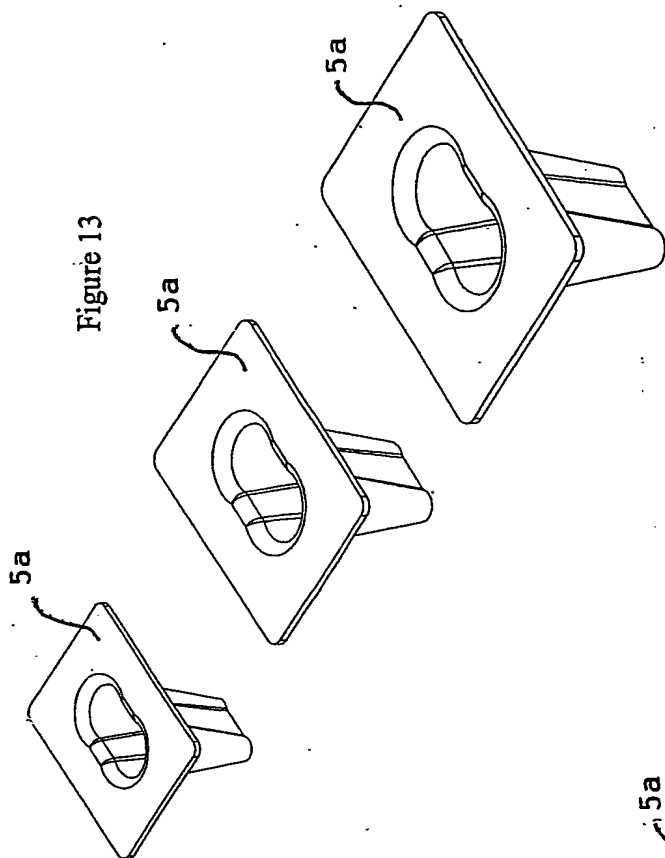


Figure 13

Figure 12

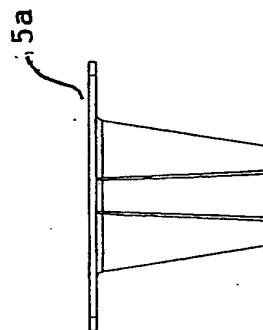
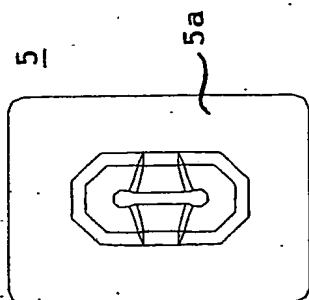


Figure 15

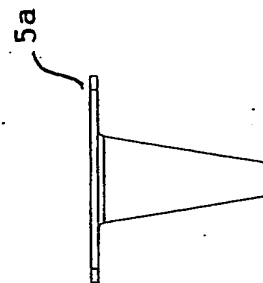


Figure 14

SURGI-SMART Tool Holder

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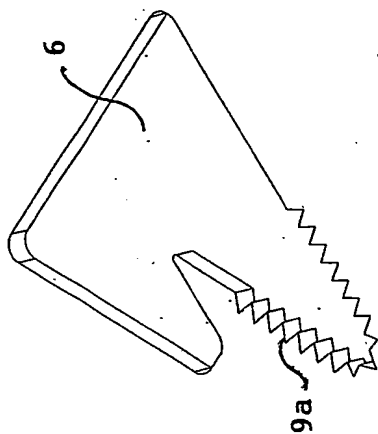


Figure 17

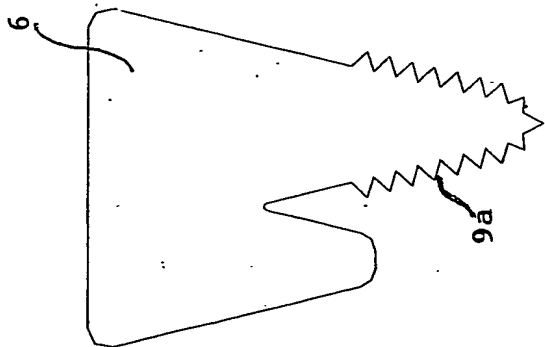


Figure 16

SURGI-SMART Scalpel Remover

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00705

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: A61B 19/02 B65D 85/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

SEE ELECTRONIC DATABASES CONSULTED

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AU IPC: A61B 19/00, 19/02 B65D 85/24, 83/02, 83/10. EPC: A61B 19/02H, 19/02P2

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI JAPIO: A61B A61J B65D surgery operation hole aperture holster receptacle socket cavity recess well trap contain hold held retain tray case rack box housing dispense scalpel blade forcep scissor clamp sharp needle knife knives block holder

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5181609 A (SPEILMANN et al) 26 January 1993 Figures	1-3, 8-10, 14-16
Y	WO 01/08583 A1 (AESCULAP AG & CO. KG) 8 February 2001 Abstract and figures	1-3, 8-10, 14-16
Y	US 4693439 A (HAHN) 15 September 1987 Figures	1-3, 8-10, 14-16

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

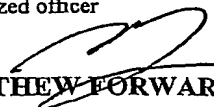
"&" document member of the same patent family

Date of the actual completion of the international search
15 July 2003Date of mailing of the international search report
22 JUL 2003

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00705

Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :

because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos : 32 to 37

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Claims 32 to 37 recite a method of utilising an instrument during surgery, including the step of retaining the instrument in a holder according to claims 1 to 31. Since only claims 1 to 20 directly define a holder, whilst claims 25 to 31 define a retainer suitable for use in a holder of claim 1 and claims 21 to 24 define a medical sharps removal device, claims 32 to 37 are appended in an unclear manner. As a consequence these claims are effectively unsearchable.

3. ☐ Claims Nos :

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See extra sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1 to 20 and 25 to 31

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU03/00705

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member		
US	5181609	NO	FAMILY		
WO	01/08583	EP	1200004	US	2002098138
US	4693439	NO	FAMILY		
WO	96/39091	AU	49412/96	IT	950052
				US	5881878
GB	2316857	NO	FAMILY		
DE	2834474	NO	FAMILY		
					END OF ANNEX